

Notice of Allowability

Application No.

10/691,455

Examiner

Joe H. Cheng

Applicant(s)

HABERSAT ET AL.

Art Unit

3714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to ____.
2. ☒ The allowed claim(s) is/are 1-6.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 3/16/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date ____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

2. Authorization for this examiner's amendment was given in a telephone interview with Mr. Andrew Romero (applicant's attorney) on October 16, 2006.

3. The application has been amended as follows:

In the claims:

Rewrite claims 1-6 as follow:

--1. (currently amended) An active [test monitor] aim scoring system for testing a gunner's ability to designate a pop-up target, near a control tower, with a given laser, at an impact point for a projectile seeking said designated target with a sensor for only the narrow band near infrared radiation from said given laser[;], comprising:

an upper section containing an array of four very sensitive offset detectors focused on the areas in front of, above, [in back of,] to the right of and to the left of said target within 100 meters of the target;

a lower section electronically coupled to said upper section containing[,] an on-target detector for said near infrared radiation, and a video camera for detecting visible radiation as well as said near infrared radiation reflected by said target[;];

a computer to record and evaluate output data from all of said detectors; and

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a modulated transceiver with an antenna to receive test initiation pulses from said tower and transmit test data with evaluation to said tower.

--2. (currently amended) An active [test monitor] aim scoring system according to Claim 1, further comprising:

an electrically fired pyrotechnic device, adjacent said target coupled to said computer, to emit light and smoke in response to a hit pulse; and said computer having a first circuit means to generate a hit pulse in response to a favorable evaluation of said data.

--3. (currently amended) An active [test monitor] aim scoring system according to Claim 2, wherein[:] said computer includes a second circuit means coupled between said computer and said target to generate a lower target pulse in response to said hit pulse and a raise target pulse in response to said test initiation pulse.

--4. (currently amended) A training method for testing a gunner's ability to designate a target, near a control tower, with a given laser, at an impact point for a projectile seeking said designated target with a sensor for only the narrow band near infrared radiation from said given laser[:], comprising the steps of:

placing a substantially two dimensional representation of the target on a mechanism that pops the target upward to a nearly vertical position [(]with respect to the ground plane[]) position] or downward to a nearly horizontal position in response to an electric signal from the control tower;

directing [a first] an array of four high sensitivity offset sensors on an upper section of an active aim scoring system for the narrow band radiation toward the target and an area of ground within at least 100 meters therefrom in response to a gunner's cue signal;

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directing a video camera and a [second array of] low sensitivity [sensors] sensor on an lower section of said active aim scoring system for the narrow band radiation only toward the space occupied by the target, when the nearly vertical position, in response to the same cue signal;

loading a designation program into a first computer that defines output signal threshold levels of the sensors as a function of time for an ideal laser illumination of the area around the target and finally the target [itself] is illuminated long enough to avoid enemy detectors and to insure proper missile impact;

transporting the gunner and the given laser toward and within missile range of the target;
generating the cue signal from the gunner to the control tower to indicate a launch time for the missile;

generating the signal from the control tower to the target in response to the cue signal;
feeding the actual sensor outputs to the first computer;
generating a score, in the first computer, based on the actual sensor outputs as a function of time as compared to the required sensor outputs;

computing the time of expected missile impact at the target from the launch time in the first computer; and

generating the electric signal in the control tower, if the score exceeds a preselected hit threshold[;].

--5. (currently amended) A training method according to Claim 4, further comprising the steps of:

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generating an electric hit signal in the first computer if the electric signal [of step] generated in the control tower has been generated at the time of impact;

transmitting the hit signal, if present, to the target [raising/lowering] mechanism to lower the target in the event that a hit is scored; and

transmitting the hit signal, if present, to a hit simulator in the form of an electrical squib, whereby the hit signal fires the squib to generate smoke and light signals visible for the [subject] gunner and anyone in the control tower[;].

--6. (currently amended) A training method according to Claim 5, further [including] comprising the steps of:

storing the output signal from the video camera, as well as the computer and the values of the actual sensor [output values] outputs in a [backup] second computer in the control tower;

clearing the first computer for a new test; and

generating an electric signal to the target mechanism to raise the target [board] if the hit signals were generated in [steps and] the control tower resulting in lowering the target [board in step].

REASONS FOR ALLOWANCE

4. The following is an examiner's statement of reasons for allowance:

None of the prior art of record shows the *combination* of the structural elements of the active aim scoring system or method steps for testing a gunner's ability to designate a pop-up target at an impact point for a projectile seeking the designated target with a sensor for only the narrow band near infrared radiation from the given laser, specifically, an upper section contains

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an array of four very sensitive offset detectors focused on the areas in front of, above, to the right of and to the left of said target with 100 meters of the target, and a lower section electronically coupled to the upper section containing an on-target detector for the near infrared radiation and a video camera for detecting visible radiation as well as the near infrared radiation reflected by the target.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Aronson (U.S. Pat. No. 3,889,396) discloses the direct fire weapons trainer by using the narrow beam radiation detectors to illuminating the hit on the target. Michelsen (U.S. Pat. No. 3,953,132) teaches the system for registering position of element by using the television camera direction system to follow the target and to provide the line-of-sight measurement of the target. Robertsson (U.S. Pat. No. 3,955,292 and 4,218,834) discloses the apparatus for antiaircraft gunnery practice with laser emissions by using the laser radiation detector the control the aiming of the gun. Simpson et al (U.S. Pat. No. 4,538,991) teaches the target apparatus for weapon fire training by using the detectors to detect the miss distance and the sight located to the target and the TV camera mounted onto the gun for permitting the instructor to monitor and correct the gunners performance. Eichweber (U.S. Pat. No. 4,793,811) discloses the arrangement for shot simulation by using the CCD camera to detect the infrared light emitted by the target. Wootton et al (U.S. Pat. No. 5,332,176) teaches the controlled interlace for TOW missiles using medium

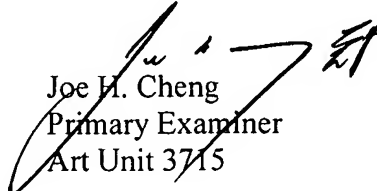
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wave infrared sensor or TV sensor. Shechter et al (U.S. Pub. No. 2002/0012898 A1) discloses the firearm simulation and gaming system and method for operatively interconnecting a firearm peripheral to a computer system by using the detector arrays disposed about the display screen which displaying the virtual target to detect the cross-hair of the firearm corresponding to the hit point on the target. Bollweg et al (U.S. Pat. No. 6,549,872 B2) teaches the method and apparatus for firing simulation by using the laser transmitters contained in the sight which is mounted on the barrel of the gun to measure the range. Hulet (U.S. Pat. No. 6,669,477 B2) discloses the system and method for scoring supersonic aerial projectiles by suing the transducer to detect the projectile shock wave. Varshneya (U.S. Pub. No. 200/0033472 A1) teaches the all-optical precision gunnery simulation method and system.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joe H. Cheng whose telephone number is (571)272-4433. The examiner can normally be reached on Tue.- Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Olszewski can be reached on (571)272-6788. The fax phone number for the organization where this application or proceeding is assigned is 571-272-3700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Joe H. Cheng
Primary Examiner
Art Unit 3715

Joe H. Cheng
October 16, 2006